

**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA**

**INTERDEPARTMENT CORRESPONDENCE**

**FILE:** STP00-0114-01(085) Fulton  
P.I. No.: 721790  
SR 9/Main Street Widening

**OFFICE:** Engineering Services

**DATE:** December 8, 2009

**FROM:** Ronald E. Wishon, Project Review Engineer *REW*

**TO:** Bobby K. Hilliard, PE, State Program Delivery Engineer  
Attn.: Peter Emmanuel


**SUBJECT: IMPLEMENTATION OF VALUE ENGINEERING STUDY ALTERNATIVES**

The VE Study for the above project was held October 5-9, 2009. Responses were received on December 3, 2009. Recommendations for implementation of Value Engineering Study Alternatives are indicated in the table below. The Project Manager shall incorporate the VE alternatives recommended for implementation to the extent reasonable in the design of the project.

ALT #	Description	Potential Savings/LCC	Implement	Comments
A-6	Reduce footprint/width of typical section by removing the bike lanes from the pavement and using wider sidewalks as multi-use trails	\$2,516,000	No	This is a 45 mph corridor and tractor trailers using a shared lane as proposed by the VE Study create a safety concern for cyclists. According to GDOT's Bicycle and Pedestrian Coordinator, multi-use paths don't work well in urban areas where the paths cross more than a few driveways and side streets. Given the urban nature of the corridor and the safety benefits and concerns, on-street bike lanes are the better long term option for the area. There would also be additional maintenance cost associated with the wider multi-use trails, and wider trails would mean that utilities would be located under the trails.

A-10	Use 10 ft right turn lane instead of 11 ft turn lane	\$648,505	No	Narrowing the width of the right turn lane could cause turning trucks to encroach into the opposing traffic lane. While this corridor currently has 4% trucks, there are high volumes for right turns along the corridor.
B-11	Break out Grading Complete into more items	\$1,805,865	Yes	As design progresses, this will be done.
C-1	Change the GAB to asphalt base	<b>(-\$27,271) Cost increase</b>	Yes	This will be done, pending approval from OMR.
G-2	Use 24" curb and gutter instead of 30"	\$643,030	Yes	This will be done.
K-2	Approach City of Alpharetta about donating project office space	\$75,000	Yes	This will be done.

The Office of Engineering Services concurs with the Project Manager's responses.

Approved:  Date: 12/8/09  
Gerald M. Ross, PE, Chief Engineer

REW/LLM  
Attachments

c: Ben Buchan  
Mike Haithcock/Peter Emmanuel  
Mickey McGee  
Ken Werho  
Lisa Myers  
Matt Sanders

VE Team: Nebiat Abraham  
Daniel Gethi  
Jason Mobley  
David Moyer  
Hiral Patel

DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA

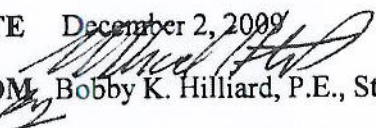
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INTERDEPARTMENT CORRESPONDENCE

**FILE** PEMAS011401085, P.I. 721790, Fulton County

**OFFICE** Program Delivery

**DATE** December 2, 2009

**FROM**  Bobby K. Hilliard, P.E., State Program Delivery Engineer

**TO** Ron Wishon, Office of Engineering Services  
**ATTN:** Lisa Myers/Matt Sanders

**SUBJECT** VE Study Recommendation Responses

Attached is the response to the VE Study Recommendations for your further handling for approval in accordance with the Plan Development Process (PDP).

If there are any questions, please contact Peter Emmanuel at (404) 631-1158.

BKH:MAH:pbe

Attachment



## Value Engineering Study Recommendations Responses:

Project No. STP00-0114-01(085), Fulton County  
PI 721790 – S.R. 9 from Upper Hembree Rd. to Academy St.  
Initial Responses to GDOT: 12/03/09  
Prepared by: Kevin Skinner & Peter Emmanuel

Subject: This is a response to the VE Study six recommendations for this project.

### Recommendation A-6:

#### ***1. Reduce foot print/reduce width of typical section***

Implementation: No, it does not agree with the County/City Bike & Ped Plan.

Response: This recommendation suggest the reduction of the proposed R/W footprint of 93' to 84' by removing the bike lanes from the pavement, using wide asphalt sidewalks as multi-use trails in lieu of sidewalks and separate bicycle lanes. In short, the recommendation keeps the 12' shoulders (provide an 8' wide asphalt multi-use path, and convert the other 5' sidewalk to asphalt), but drops the 4' bike lanes in each direction, and reduces the curb and gutter from 30" to 24". While this recommendation has some merits, Fulton County/City of Alpharetta Bike/Ped Plan calls for bike lanes on each side of the road not on one side only as suggested by the VE Study. If a Multi-Use Path is put on both side of the road it will increase the project cost overtime (during the life cycle) due to maintenance cost associated with utilities buried under shoulders, and eliminate any potential savings. However, since the idea of converting on street bike lanes into multi-use path seems to give bicyclist more separation from vehicular traffic, and added safety; Byron Rushing, the State Bike/Ped Coordinator, weighing in on the recommendation. See the attachment. The 30" to 24" alternate curb and gutter recommendation is addressed in more detail in Recommendation G-2.

It should be noted that while the dimension drawn on the VE Study typical section do add up, the 3' setback from the back of curb that is required for multi-use paths is not met and would require a variance.

### Recommendation A-10:

#### ***2. Use 10' Right Turn Lane***

Implementation: No, because of safety risk.

Response: This recommendation involves the reduction of the proposed 11' right turn lane to 10' right turn lane. This suggestion is very risky for safety reason. It has not been proven that truck traffic using a 10' turn lane will not encroach into the other lane traffic, especially when making a right turn. Moreover, the Department's Design Policy and AASHTO's Green Book suggest and recommend a minimum of 11' width for right turn lane of urban arterial roadway. Although, the VE study shows how even a 1' reduction can reduce the project cost by a moderate amount, the luring danger (sideswipe type of accident) to motorist is not worth the combined cost savings of less asphalt and graded aggregate base. Nonetheless, 10' right turn lane would require a design variance

and change to the Department's design policy, if pursued. Also, given the large amount of traffic along the project corridor and the existing 4% of truck traffic, it may not hold well to pursue the 10' right turn lane especially on high volume right turns. Further evaluation with the City of Alpharetta's Traffic Engineer and the Department's Traffic Engineer may be needed, if pursued.

Recommendation B-11:

**3. Itemize Grading Complete**

Implementation: Yes

Response: This recommendation suggests the itemization of Grading Complete into more calculate able items such as earthwork, clearing and grubbing, etc. The cost estimate line item for grading complete was given as \$2M, and when it is cut into the actual earthwork volumes, the earthwork is much less expensive. As the design advances and more exact limits and earthwork volumes are calculated, separating "grading complete" into "unclassified excavation", "borrow excavation", and "clearing and grubbing" will reduce the construction cost estimate as suggested.

Recommendation C-1:

**4. Use Asphalt Base instead of GAB**

Implementation: Yes, if OMR recommends.

Response: This recommendation suggests the use of asphalt base instead of GAB throughout the project or in a selected area. While this recommendation is not a certain way to save money, it does provide a quicker way to construct some areas. We are in agreement that some of the benefits of the asphalt base are hard to quantify, although they are numerous. Without a completed detailed staging plan, the actual time savings cannot be firmly calculated. This alternate base will be discussed with the Department's office of Materials & Research (OMR) during the final Pavement Design process to determine whether to specify asphalt base, or possibly allow the option to the contractor.

Recommendation G-2:

**5. Use 24" Curb and Gutter**

Implementation: Yes, if it does not require design variance, and the unit cost of 24" gutter width remain less than 30".

Response: This recommendation involves using 8"x24", TP 2 concrete curb and gutter instead of 8"x30", TP 2 throughout the project. While this would provide a sizable cost reduction, consideration should be made for adjacent sections of SR 9. A 30" curb and gutter is in place immediately to the South, and at least one of the widening projects to the north has an approved concept showing 30" curb and gutter. Maintaining a uniform curb and gutter along SR 9 does have some worth, but is difficult to quantify. Reducing the gutter width by 6" (30" minus 24") is not likely to cause gutter spread issues, since a bike lane is provided. If the variance from the Georgia Standard is allowed, it is worth the effort for such a cost savings – provided that the unit cost of 8"x24" gutter width (\$14.51) remains less than 8"x30" gutter width (\$16.27) during the design life of the project.



Recommendation K-2:

***6. Use Alpharetta Office Space***

Implementation: Yes

Response: This recommendation suggests that the Department approach the City of Alpharetta about donating the use of office space for the project office. The City of Alpharetta has been extremely eager to get this project moving, as noted by their attempted \$1,000,000 donation to GDOT, and it is quite possible that the City would be willing to provide field office space to the contractor free of charge. In addition, almost any building space would likely be of better quality than a portable trailer.

Attachments:

Bike Lane Issues Email Correspondence

Department's Design Policy Manual Page 6-4, 6-6, 6-7

2004 AASHTO's Green Book Page 472 – 473 Recommendation

**Emmanuel, Peter**

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**Subject:** SR 9 projects, PI 721780 & 721790, Fulton County, VE Study Recommendations Responses Documentation

**From:** Rushing, Byron  
**Sent:** Tuesday, October 27, 2009 10:57 AM  
**To:** Emmanuel, Peter; 'Kevin Skinner'  
**Cc:** Hilliard, Bobby  
**Subject:** RE: SR 9, PI 721780 & 721790, Fulton County

Peter and Kevin, after having reviewed the concept report, local plans, and discussed the situation with folks I'm still of the firm opinion that on-street bicycle lanes will be the most beneficial facility for this project. Multi-Use Paths and sidepaths simply don't work well in urban areas where they will cross more than a few driveways and cross streets – each of those crossings is an additional hazard for cyclists, especially those traveling opposite the adjacent traffic flow. Bike lanes better serve the needs of a downtown community, are in line with the recommendations of the area's LCI plan, and will be safer for cyclists in busy areas. Ultimately given the urban nature of the corridor and the safety benefits or concerns, on-street bike lanes will be the better long-term option for the area.

The two plans that I checked were the ARC's 2007 BikePed plan (which calls for paved shoulders or bike lanes along the length of SR 9) and Alpharetta's LCI plan (which recommends bike lanes on any roads with available space and does not include SR 9 in a list of roads needing an MUP facility). Please refer to the AASHTO "Guide for the Development of Bicycle Facilities" for design guidelines. Pages 22-32 have good information on bicycle lane design and Figures 7 and 11 are good illustrations of bicycle lane stripping at intersections and turn lanes – dashing the bike lane stripping approaching intersections is a particularly important element.

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**Byron Rushing**  
State Bicycle & Pedestrian Coordinator  
Georgia Department of Transportation  
404-631-1778 phone  
404-631-1957 fax  
brushing@dot.ga.gov

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**From:** Graves, Eric [mailto:egraves@alpharetta.ga.us]  
**Sent:** Friday, October 23, 2009 4:08 PM  
**To:** Emmanuel, Peter  
**Cc:** Sewczwicz, Peter; Drinkard, James  
**Subject:** RE: SR 9, PI 721780 & 721790, Fulton County

Peter:

When we discussed the identified value engineering options, we can tentatively agree to both. One concern was that if Roswell or Milton end up providing marked bike lanes, Alpharetta would want to be in concert with those efforts.

Also, as discussed previously, Alpharetta will want to closely coordinate the typical section through the historic Alpharetta core (between Marietta Street to Church Street). This section will require a special typical to recognize the downtown core activities with augmented pedestrian facilities, streetscape amenities, and addressing parking needs.

We will work to develop typical section options for the Preliminary Engineering effort.

Best regards,

Eric

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**From:** Rushing, Byron  
**Sent:** Monday, October 19, 2009 4:41 PM  
**To:** Emmanuel, Peter  
**Subject:** RE: SR 9, PI 721780 & 721790, Fulton County

Peter, this corridor is also on the ARC 2007 bike/ped plan that is much more current than the Fulton County plan. I asked the ARC staff if they had a facility recommendation for SR 9 in Alpharetta and they said their plan generally called for on-street bike lanes in any downtown urban area with many driveway cuts. They said they considered sidepaths to be supplemental to on-street improvements:

32 While sidepaths appear to many to be appropriate bicycle facility alternatives, crash statistics and operational challenges from across the United States and around the world provide ample warning that, in many settings, they are not (see AASHTO Guide for the Development of Bicycle Facilities, pp.33-35). Preliminary corridor-specific design is needed for each to determine their feasibility from an operational/safety standpoint. For more information on the design requirements of sidepaths see Petritsch, T.A., B.W. Landis, H.F. Huang, and S. Challa, "Sidepath Safety Model: Bicycle Sidepath Design Factors Affecting Crash Rates." Presented at the 85th Annual Meeting of the Transportation Research Board, Washington, DC, January 26, 2006. Accepted for publication in Transportation Research Record: Journal of the Transportation Research Board.

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**Byron Rushing**  
State Bicycle & Pedestrian Coordinator  
Georgia Department of Transportation  
404-631-1778 phone  
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brushing@dot.ga.gov

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**From:** Slaughter, Ernest [mailto:Ernest.Slaughter@fultoncountyga.gov]  
**Sent:** Monday, October 19, 2009 4:27 PM  
**To:** Emmanuel, Peter; Howlader, Abul  
**Cc:** Rushing, Byron  
**Subject:** RE: SR 9, PI 721780 & 721790, Fulton County

**Peter,**

The referenced projects are not located in unincorporated Fulton County. They are located within a city limits. Whatever that jurisdiction opts to do as it relates to their proposed project, is not a decision the County wishes to weigh in on, however; the decision to change the bike width seems attainable.

**Ernest Slaughter**  
Deputy Director Transportation  
Fulton County Department of Public Works  
Office: 404-612-8325  
Cell: 404-983-7993  
Fax: 404-893-6231  
email: Ernest.Slaughter@FultonCountyGa.Gov

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**From:** Emmanuel, Peter [mailto:pemmanuel@dot.ga.gov]  
**Sent:** Monday, October 19, 2009 10:08 AM  
**To:** Slaughter, Ernest; Howlader, Abul  
**Cc:** Rushing, Byron  
**Subject:** FW: SR 9, PI 721780 & 721790, Fulton County  
**Importance:** High

Ernest & Abul,



Please read the below emails and the attachments, and tell me your opinion on the removal of separated bike lanes from the projects for a multipurpose pad (sidewalk extension from 5' to 8' or 10'). Please note that the bike lane provision is on the 1995 Fulton County Bike and Ped Plan page 17. Your expeditious handling of this request will be appreciated.

Thank you.

**Peter B. Emmanuel**

**Project Manager**

*Office of Program Delivery*

*GA. Department of Transportation*

*One Georgia Center, 25th Floor, Cube 2548*

*600 West Peachtree St NW*

*Atlanta, GA 30308*

*Office: 404-631-1158*

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*"The only thing that interferes with my education is my learning...Albert Einstein"*

*"I do not reject any influences provided that it is pure, fresh, and healthy...Bela Bartok"*

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**From:** Emmanuel, Peter

**Sent:** Monday, October 19, 2009 10:49 AM

**To:** 'Graves, Eric'; Sewczwicz, Peter

**Cc:** Haithcock, Michael; Hilliard, Bobby; Rushing, Byron

**Subject:** RE: SR 9, PI 721780 & 721790, Fulton County

Eric,

Thank you for your prompt response. I know this is too early in the week, but have you had the chance to discuss my request with the department you listed in your email below. Please keep in mind that the request is about the removal of separated bike lanes from the projects for a multipurpose pad (sidewalk extension from 5' to 8' or 10'). Also note that the bike lane provision is on the 1995 Fulton County Bike and Ped Plan page 17. Your expeditious handling of this request will be appreciated. Please let me know when you've reached a decision. Thanks.

**Peter B. Emmanuel**

**Project Manager**

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**From:** Graves, Eric [<mailto:egraves@alpharetta.ga.us>]

**Sent:** Friday, October 16, 2009 12:46 PM

**To:** Emmanuel, Peter; Sewczwicz, Peter  
**Cc:** Haithcock, Michael; Hilliard, Bobby  
**Subject:** RE: SR 9, PI 721780 & 721790, Fulton County

Emmanuel:

I've reviewed the options and don't personally have any specific concerns. **HOWEVER...** I need to discuss the matter with our community development department and City Administration. We should be able to meet next week and have formal comments to you shortly thereof.

Best regards,

Eric Graves, P.E.  
City of Alpharetta  
Senior Engineer-Traffic  
1790 Hembree Road  
Alpharetta, Georgia 30009

678.297.6200 x 1218  
678.297.6201 - FAX

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**From:** Emmanuel, Peter [mailto:pemmanuel@dot.ga.gov]  
**Sent:** Thursday, October 15, 2009 1:52 PM  
**To:** Graves, Eric; Sewczwicz, Peter  
**Cc:** Haithcock, Michael; Hilliard, Bobby  
**Subject:** SR 9, PI 721780 & 721790, Fulton County  
**Importance:** High

Eric & Pete,

The subject projects VE Study was concluded on October 9, 2009, and although, I have not receive the official recommendations yet, the following recommendation was noted at the conclusion of the VE Study:

1. On P.I.# 721780 (SR 9/North Main Street from Academy Street to Windward Parkway)
  - a. Recommendation A-1: Reduce project footprint by changing bike lanes to shared use lanes. This would reduce the required R/W and materials for paving, saving the Department \$450,000.00 dollars. Please see the attachment "SR9 Proposed & Alternate Typical Section.pdf" to see the result of this suggestion. On P.I.# 721790, the same recommendations of getting rid of the bike lane and using a multi-use trail was suggested.  
Question: This recommendation will eliminate the proposed 4 feet bike lane within the pavement and instead, increased the width of the proposed 5 feet sidewalk to 10 feet sidewalk turning it into a multi-use path. Is your City in favor of the multi-use path instead of the separated bike lane? Moreover, the 10 feet wide multi-use path will reduce R/W width by 4 feet, however for the sake of space/room for utilities company, an 8 feet wide multi-use path would seem appropriate because of the limited space for utilities in the shoulder. The SR 9 widening project P.I.# 121690 concept report was approved with an 8 feet wide multi-use path instead of a 10 feet wide (please see the attachment "Project 121690 Approved Concept Report Typical Section.pdf"). What is your City take on this issues?
  - b. Recommendation G-1: Reduce Median Width from 17 feet to 8 feet between Mayfield Road and Canton Street. This would reduce R/W and materials costs, savings the Department \$314,000.00 dollars. Please see the attachment "SR9 Proposed & Alternate Typical Section.pdf" to see the result of this suggestion.  
Question: This recommendation is within your City LCI area, are you in favor of reducing the median width from 17' (currently proposed) to 8' from Mayfield Road to Canton street. If it is reduced, the R/W cost and footprint would be lessened, but this would leave less median space for plantings (as desired in your City LCI study). What is your City take on this issues?

Please advise on the above questions no later than Friday, October 16, 2009 COB. Your response and answer will allow my consultant & I to address the VE Study Recommendations and Implementations, so that the Concept Report can be updated and turn in for Management review and approval. Your expeditious assistance will be appreciated.

Thank you.

*Peter B. Emmanuel*

*Project Manager*

*Office of Program Delivery*

*GA. Department of Transportation*

*One Georgia Center, 25th Floor, Cube 2548*

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**Table 6.3. GDOT Design Standards for Arterial Roadways**

Item No.	Item	Rural				Urban <sup>(1)</sup>	
		Two-Lane		Four-Lane			
1	Design Speed (mph) <sup>(2)</sup>	45	55	55	65	45	55
2	Level of Service	B	B	B	B	C <sup>(3)</sup>	C <sup>(3)</sup>
3	Number of Travel Lanes	2	2	4	4	2 min-4 typ.	2 min-4 typ.
4	Width of Travel Lanes	12-ft.	12-ft.	12-ft.	12-ft.	12-ft.	12-ft.
5	Overall Width of Shoulders <sup>(11)</sup>						
	Outside Median <sup>(4)</sup>	10-ft. n/a	10-ft. n/a	10-ft. 6-ft.	10-ft. 6-ft.	n/a 6-ft.	n/a 6-ft.
6	Width of Paved Shoulders						
	Outside Median <sup>(4)</sup>	6.5-ft. n/a	6.5-ft. n/a	6.5-ft. 2-ft.	6.5-ft. 2-ft.	n/a 2-ft.	n/a 2-ft.
7	Width of Median (ft)						
	Depressed	n/a	n/a	32-44-ft.	32-44-ft.	n/a	n/a
	Raised Flush	n/a n/a	n/a n/a	24-ft. n/a	24-ft. n/a	Turn Lane <sup>(5)</sup> plus 8-12-ft. 14-ft.	Turn Lane <sup>(5)</sup> plus 8-12-ft. n/a
8	Sidewalks						
	Width of Sidewalk Sidewalk Offset from Curb	n/a n/a	n/a n/a	n/a n/a	n/a n/a	5-ft. 6-ft.	5-ft. 6-ft.
9	Width of Bike Lane <sup>(6)</sup>	n/a	n/a	n/a	n/a	4-ft.	4-ft.
10	Fore Slope – Ratio	4:1	4:1	4:1	4:1	2:1 max.	4:1
11	Back Slope – Ratio	2:1 max.	2:1 max.	2:1 max.	2:1 max.	2:1 max.	2:1 max.
12	Pavement Cross Slope	0.02-ft./ft.	0.02-ft./ft.	0.02-ft./ft.	0.02-ft./ft.	0.02-ft./ft.	0.02-ft./ft.
13	Stopping Sight Distance <sup>(7)</sup>	360-ft.	495-ft.	495-ft.	645-ft.	360-ft.	495-ft.
14	Maximum Superelevation	0.06-ft./ft.	0.06-ft./ft.	0.06-ft./ft.	0.08-ft./ft.	0.04-ft./ft.	0.06-ft./ft.
15	Minimum Radius						
	Without Superelevation (+ .02) <sup>(8)</sup> Without Superelevation (- .02) <sup>(8)</sup>	4,680-ft. 6,480-ft.	6,820-ft. 9,410-ft.	6,820-ft. 9,410-ft.	9,510-ft. 12,900-ft.	4,040-ft. 5,930-ft.	6,820-ft. 9,410-ft.
16	Minimum Radius (With Superelev.)	643-ft.	1,060-ft.	1,060-ft.	1,480-ft.	711-ft.	1,060-ft.
17	Maximum Grade (%)						
	Level	4%	3%	3%	3%	7%	6%
	Rolling Mountainous	5% 7%	4% 6%	4% 6%	4% 5%	8% 10%	7% 9%
18	Minimum Vertical Clearance (ft) <sup>(9)</sup>	16.75- 17.5	16.75- 17.5	16.75- 17.5	16.75- 17.5	14.5	14.5
19	Clear Zone	See Note (10)	See Note (10)	See Note (10)	See Note (10)	See Note (10)	See Note (10)

**Notes:**  
<sup>(1)</sup> Applies to curbed sections only unless stated otherwise. Use rural standards for uncurbed sections.  
<sup>(2)</sup> See current AASHTO Green Book, Chapter 7, Design Speed. Also see notes 6, 7, and 8 below for design speeds not shown.  
<sup>(3)</sup> LOS D is permissible in heavily developed areas.  
<sup>(4)</sup> Applies to uncurbed sections.  
<sup>(5)</sup> GDOT prefers the use of 24-ft. raised median if there are minimal impacts associated with a wider median.  
<sup>(6)</sup> Values shown are for the given design speed. For other design speeds, refer to current AASHTO Green Book, Chapter 3.  
<sup>(7)</sup> Values shown are for the given design speed. For other design speeds, see current AASHTO Green Book, Chapter 3.  
<sup>(8)</sup> Values shown are for the given design speed. For other design speeds, see Chapter 4 of this Manual.  
<sup>(9)</sup> Minimum values are for vehicular clearances. Please refer to GDOT Bridge and Structures Policy Manual for further information, clearances at other facilities and limitations.  
<sup>(10)</sup> For clear zone distances, refer to the current edition of the AASHTO Roadside Design Guide, Chapter 3.  
<sup>(11)</sup> Shoulder widths less than the minimum recommended by AASHTO shall require a Design Exception.

As previously noted, the Concept Development Phase will set the approved values and typical sections to be used. Should any proposed value be less than AASHTO Design Standards, a design exception will be required. Refer to the GDOT *Plan Development Process*<sup>3</sup> for further guidance on completing design exceptions. On Federally funded projects, the typical section is subject to Federal Highway Administration (FHWA) approval.

### 6.2.1. Lane Widths

GDOT's standard for lane widths is 12-ft., except as noted in **Table 6.5**. The values presented in **Table 6.5** represent typical values used by GDOT and are not a complete list of all lane and shoulder widths used.

**Table 6.5. Typical Lane and Shoulder Widths<sup>(1)</sup>**

Lane Type	Lane Width (ft)	Inside Shoulder (ft) No Curb and Gutter		Outside Shoulder (ft) No Curb and Gutter		Outside Shoulder With Curb and Gutter (ft)
		Overall <sup>(2)</sup>	Paved	Overall <sup>(2)</sup>	Paved	
Arterial or Collector	12	6	2	10	6.5	16
Urban Type A	11					16
Urban Type B	12					
Local Roads (if ADT<400, refer to AASHTO <i>Green Book</i> )	12					
Shared Bike Routes	14					
Designated Bike Routes	4					
Channelized Turn Lane	16 (min.)					
HOV	14					
Two Way Left Turn Lane (TWLTL)	14					
TWLTL with provision for future 20-ft.raised median	14	See special details for other roadway dimensions				
One-Way Roadway, Single Lane	16					
One-Way Roadway, Multilane	12					
Loop Ramp						
Free Flow Ramps						
Single Lane Entrance/Exit Ramps	16	6	4	12	10	
Multi Lane Entrance/Exit Ramps	12	6	4	12	10	
Interstates & Freeways	12	Refer to the current AASHTO publication, <i>A Policy on Design Standards -- Interstate System</i> <sup>4</sup>				

<sup>(1)</sup> The need for additional widening shall be determined in accordance with AASHTO recommendations.  
<sup>(2)</sup> Overall shoulder width does not include additional width required for the installation of barrier.

<sup>3</sup> GDOT. *Plan Development Process*. 2006

The current version of this document is available on the GDOT Repository for Online Access to Documentation and Standards (R-O-A-D-S) web page at:  
<http://www.dot.ga.gov/doingbusiness/PoliciesManuals/roads/Pages/OtherResources.aspx>

<sup>4</sup> AASHTO. *A Policy on Design Standards---Interstate System, 5<sup>th</sup> Edition*. 2005



In applying these lane width guidelines, two applications are defined; the confined, restricted right-of-way urban area, "Urban Area Type A" and the less confined "Urban Area Type B". Generally, no single defining criteria, such as speed limit or functional classification, determines lane widths. Instead, a combination of characteristics define the applicable areas.

The characteristics below are representative of and define urban area types, and, in turn, determine the minimum allowable lane width:

#### Urban Area Type A

- speed limit 35 mph or less
- curb and sidewalk
- central business district (CBD) / historic districts / overlay streetscape
- zoning /corridor continuity characteristics
- building face to curb typically less than 10-ft.
- low percentage of trucks
- lane widths may be reduced to no less than 11-ft.

#### Urban Area Type B

- speed limit greater than 35 mph but not greater than 45 mph
- curb and sidewalk
- less confined, less urbanized area, generally automobile dependent, numerous driveways
- building face to curb typically less than 10-ft.
- lane widths shall be 12-ft.; design variances will be required for lane width reductions

The standard pavement cross-slope adopted by GDOT for travel lanes is 2% (0.020 ft/ft). Roadways with three or more lanes should break the cross-slope between lane 2 and lane 3 from 2% to 3% (lanes are numbered from inside to outside).

#### 6.2.2. Shoulders

All interstate ramp shoulders should be a full-depth, full-width paved shoulder. The standard shoulder cross-slope for total shoulder width and paved shoulder width adopted by the GDOT applies to all roadway classifications. As noted in the opening paragraphs of this Section, this can vary depending on project specifics. For instance, on some projects the paved shoulder cross-slope matches the roadway cross-slope.

On four-lane divided highways, the cross-slope on the median shoulder in tangent section is controlled by the cross-over crown restrictions described in **Section 6.4** of this Manual. Similarly, the outside shoulder cross-slopes (the convex side of the curve) on superelevated roadways will be controlled by the cross-over crown restrictions. As a result, the slope will depend on the superelevation rate.

On superelevated roadways, the inside shoulder will maintain its normal crown slope for superelevation rates equal to or less than the normal shoulder slope. For superelevation rates greater than the normal shoulder rate, the inside shoulder slope is the same as the superelevation rate of the roadway. For additional discussion of the superelevation, refer to **Chapter 4. Elements of Design, Section 4.5.**



guidance applicable to both rural and urban arterials is presented in the section on "Superelevated Cross Sections" in the earlier discussion of rural arterials in this chapter.

Type of terrain	Metric						US Customary							
	Maximum grade (%) for specified design speed (km/h)						Maximum grade (%) for specified design speed (mph)							
	50	60	70	80	90	100	30	35	40	45	50	55	60	
Level	8	7	6	6	5	5	8	7	7	6	6	5	5	
Rolling	9	8	7	7	6	6	9	8	8	7	7	6	6	
Mountainous	11	10	9	9	8	8	11	10	10	9	9	8	8	

Exhibit 7-10. Maximum Grades for Urban Arterials

### Cross Slope

Sufficient cross slope for adequate pavement drainage is important on urban arterials. The typical problems related to splashing and hydroplaning are compounded by heavy traffic volumes and curbed sections, especially for high speeds. Cross slopes should range from 1.5 to 3 percent; the lower portion of this range is appropriate where drainage flow is across a single lane and higher values are appropriate where flow is across several lanes. Even higher cross-slope rates may be used for parking lanes. The overall cross section should provide a smooth appearance without sharp breaks. Because urban arterials are often curbed, it is necessary to provide for longitudinal as well as cross-slope drainage. The use of higher cross-slope rates also reduces flow on the roadway and ponding of water due to pavement irregularities and rutting. The section on "Cross Slopes" in Chapter 4 provides additional guidance.

### Vertical Clearances

New or reconstructed structures should provide 4.9-m [16-ft] vertical clearance over the entire roadway width. Existing structures that provide clearance of 4.3 m [14 ft], if allowed by local statute, may be retained. In highly urbanized areas, a minimum clearance of 4.3 m [14 ft] may be provided if there is an alternate route with 4.9-m [16-ft] clearance. Structures should provide additional clearance for future resurfacing of the underpassing road.

### Lane Widths

Lane widths may vary from 3.0 to 3.6 m [10 to 12 ft]. Lane widths of 3.0 m [10 ft] may be used in highly restricted areas having little or no truck traffic. Lane widths of 3.3 m [11 ft] are used quite extensively for urban arterial street designs. The 3.6-m [12-ft] lane widths are most desirable and should be used, where practical, on higher speed, free-flowing, principal arterials.



Under interrupted-flow operating conditions at low speeds (70 km/h [45 mph] or less), narrower lane widths are normally adequate and have some advantages. For example, reduced lane widths allow more lanes to be provided in areas with restricted right-of-way and allow shorter pedestrian crossing times because of reduced crossing distances. Arterials with reduced lane widths are also more economical to construct. A 3.3-m [11-ft] lane width is adequate for through lanes, continuous two-way left-turn lanes, and lanes adjacent to a painted median. Left-turn and combination lanes used for parking during off-peak hours and for traffic during peak hours may be 3.0 m [10 ft] in width. If provision for bicyclists is to be made, see the AASHTO *Guide for the Development of Bicycle Facilities* (6).

If substantial truck traffic is anticipated, additional lane width may be desirable. The widths needed for all lanes and intersection design controls should be evaluated collectively. For instance, a wider right-hand lane that provides for right turns without encroachment on adjacent lanes may be attained by providing a narrower left-turn lane. Local practice and experience regarding lane widths should also be evaluated.

### Curbs and Shoulders

Shoulders are desirable on any highway, and urban arterials are no exception. Where four lanes are warranted, shoulders are desirable. They contribute to enhanced safety by affording maneuver room and providing space for immobilized vehicles. They offer a measure of safety to the occasional pedestrian in sparsely developed areas where sidewalks are not appropriate and provide space for bicyclists where allowed by law. They also serve as speed-change lanes for vehicles turning into driveways and provide storage space for plowed snow.

Despite the many advantages of shoulders on arterial streets, their use is generally limited due to restricted right-of-way and the necessity of using the available right-of-way for traffic lanes. Where the abutting property is used for commercial purposes or consists of high-density residential development, a shoulder, if provided, is subject to such heavy use in serving local traffic that the pavement strength of the shoulder must be about the same as that for the travel lanes. In urban and suburban areas, the outside edges of shoulders are often curbed and a closed drainage system provided to minimize the amount of right-of-way needed. In addition, curbs are often appropriate in heavily developed areas as a means of controlling access.

In those instances where sufficient right-of-way exists to consider shoulders, refer to the discussion on shoulders in the rural arterial section of this chapter for guidance. Where provision of shoulders is not practical, and curbs are to be used, refer to the section on "Curb Placement" in Chapter 4.

### Number of Lanes

The number of lanes varies, depending on traffic demand and availability of the right-of-way, but the normal range for urban arterial streets is four to eight lanes in both directions of travel combined. A capacity analysis should be performed to determine the proper number of

# PRECONSTRUCTION STATUS REPORT FOR PI:721780-,721790-

## SR 9/S MAIN ST FM UPPER HEMBREE RD TO ACADEMY ST

**PROJ ID :** 721790-  
**COUNTY :** Fulton  
**LENGTH (MI) :** 1.70  
**PROJ NO.:** STP00-0114-01(085)  
**PROJ MGR:** Emmanuel, Peter B.  
**AOHD Initials:** MAH  
**OFFICE :** Program Delivery  
**CONSULTANT:** Turnkey Consultant, (Contract with GDOT)  
**SPONSOR :** GDOT  
**DESIGN FIRM:** Pond & Company

**MPO:** Atlanta TMA  
**TIP #:** FN-087B  
**MODEL YR :** 2030  
**TYPE WORK:** Widening  
**CONCEPT:** ADD 4U(MED 20)  
**PROG TYPE:** Reconstruction/Rehabilitation  
**Prov. for ITS:** N  
**BOND PROJ :**

**PRIORITY CODE:** 7  
**DOT DIST:** 6  
**CONG. DIST:** Y  
**BIKE:** E  
**MEASURE:** 07  
**NEEDS SCORE:** 07  
**BRIDGE SUFF:**

**MGMT LET DATE :**  
**MGMT ROW DATE :**  
**BASELINE LET DATE:**  
**SCHED LET DATE :**  
**WHO LETS?:** GDOT Let  
**LET WITH :**

PROGRAMMED FUNDS				
Activity	Approved	Proposed	Cost	Status
PE	2007	2007	960,413.77	AUTHORIZED
PE	1993	1993	1,520,000.00	AUTHORIZED
ROW	LR	2015	7,034,415.22	PRECST
CST	LR	2018	12,485,477.31	PRECST

BASE START	BASE FINISH	LATE START	LATE FINISH	TASKS	ACTUAL START	ACTUAL FINISH	%
		12/31/2009	12/31/2009	Concept Development	9/15/2008	3/20/2009	75
		12/18/2009	12/31/2009	Concept Meeting	3/20/2009	9/16/2009	100
		12/31/2009	12/31/2009	PM Submit Concept Report	9/16/2009		100
		12/31/2009	12/31/2009	Receive Preconstruction Concept Approval			0
		12/31/2009	12/31/2009	Management Concept Approval Complete			0
		12/29/2009	12/29/2009	Value Engineering Study	9/18/2009		82
		1/15/2010	1/15/2010	Public Information Open House Held			0
		1/1/2010	6/16/2011	Environmental Approval			0
		2/18/2011	4/14/2011	Pub Hear Held/Comm Resp (EA/FONSI, GEPA)			0
		2/5/2010	2/25/2010	Mapping			0
		3/1/2010	4/2/2010	Field Surveys/SDE			0
		4/6/2010	1/11/2011	Preliminary Plans			0

STIP AMOUNTS			
Activity	Cost	Fund	
PE		Q23	
PE		L230	
ROW	0.00	L240	
CST	0.00	L240	

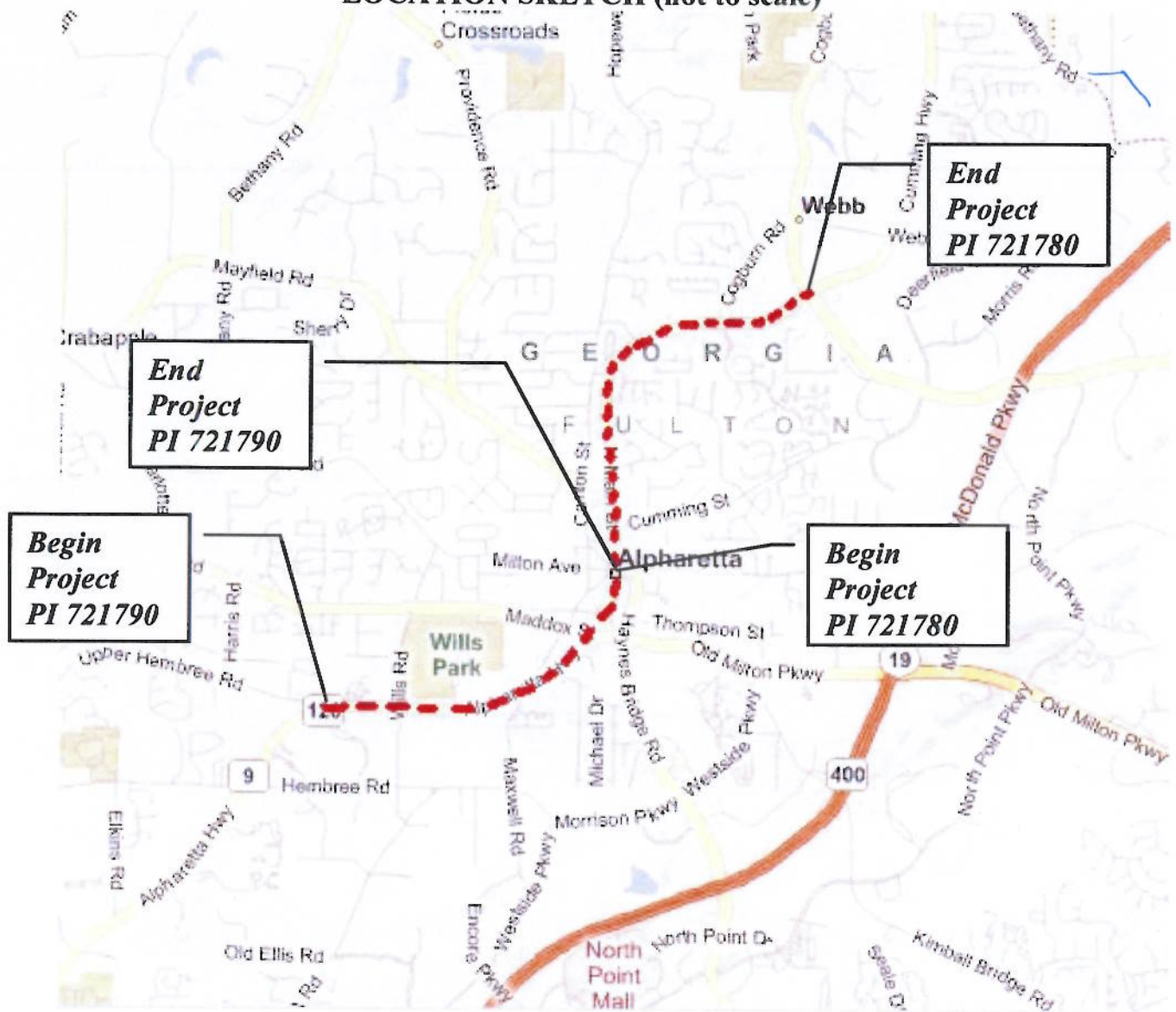
District Comments	
Reassigned to OPD from District#7	
NOTES:	
1) Draft Concept Report Submitted on September 16, 2009 & Routed for Review.	
2) Concept Team Meeting Held on October 6, 2009.	
3) VE Study Held October 5 - 9, 2009.	
4) Incorporating Recommendations from Concept Team Meeting/VE Study to revise Concept Report	
5) Preparing for PIOH once Concept Report is Approved	
6) Tier #1, Score #45, B/C ratio 7.02, Delay reduction of 1,483 hrs	
7) Pond & Co. must submit Draft EA prior to contract expire 12/31/09.	

PDD:	ARC LR RW & CST. 6/23/94
Bridge:	NO BRIDGE REQUIRED
Design:	PROJECT CONCEPT/ENVIR PHASE ONLY
EIS:	EA-4FJNoSchedule/Phillips 0.08.09
LGPA:	PMA SCN ALPHARETTA DO PE 3-16-06.
Planning:	SR 9/S Main St. from Upper Hembree Rd to Academy St. is on the Fulton Co Bike/Ped Plan (1995) pg 17
Prog. Develop:	PE in 2007 was added at the request of Chief Eng
Programming:	PE/PR2-5-24-93/1 2-06/12 5-07
Traffic Op:	SM-SEND PLANS FOR PPR REVIEW WHEN READY 9-15-06
Utility:	CC: NEED PLANS 12/04-OPD SUE:TK4 C119
EMG:	RECS/REHAB (WIDENING), C-M/S/D, FLY 6509/06 FOR MAPPING

Prel. Parcel CT:	160	Total Parcel in ROW System:		Cond. Filed:	
Under Review:		Options - Pending:		Relocations:	
Released:		Condemnations- Pend:		Acquired:	
				Acquired by:	DOT
				Acquisition MGR:	
				R/W Cert Date:	
				DEEDS CT:	



**LOCATION SKETCH (not to scale)**



***Project Numbers: STP00-0114-01(084), PI 721780  
STP00-0114-01(085), PI 721790***